

ABSTRACT

A method of forming a field effect transistor creates shallower and sharper junctions, while maximizing dopant activation in processes that are consistent with current manufacturing techniques. More specifically, the invention increases the oxygen content of the top surface of a silicon substrate. The top surface of the silicon substrate is preferably cleaned before increasing the oxygen content of the top surface of the silicon substrate. The oxygen content of the top surface of the silicon substrate is higher than other portions of the silicon substrate, but below an amount that would prevent epitaxial growth. This allows the invention to epitaxially grow a silicon layer on the top surface of the silicon substrate. Further, the increased oxygen content substantially limits dopants within the epitaxial silicon layer from moving into the silicon substrate.